



MIAMI-SOUTH FLORIDA
National Weather Service
Forecast Office
<http://www.weather.gov/miami>

2015 South Florida Weather Year in Review

Warmest Year on Record

December 30th, 2015: If one word can describe south Florida's weather in 2015, it would be **HOT**. 2015 will go down as the hottest year on record at all four main climate sites (Fort Lauderdale, Miami, Naples and West Palm Beach). It was also a year of unusual rainfall distribution as parts of the area were in a drought throughout most of the rainy season, only to have an extremely wet first week of December (normally one of the driest times of the year).

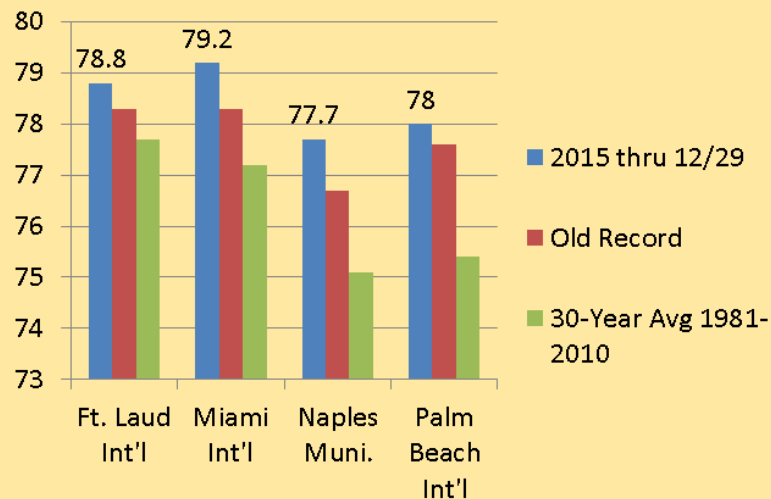
Not included in the list below, but noteworthy nevertheless, is the lack of direct impacts from tropical systems in 2015. It's now been 10 years since our last direct hurricane impact and 3 years since the last tropical storm impact.

Below is a listing of the top 5 south Florida weather stories for 2015, followed by a summary of rainfall, temperatures and hazardous weather.

#1 Weather Story of 2015

2015 Sets New Record for Warmest Year

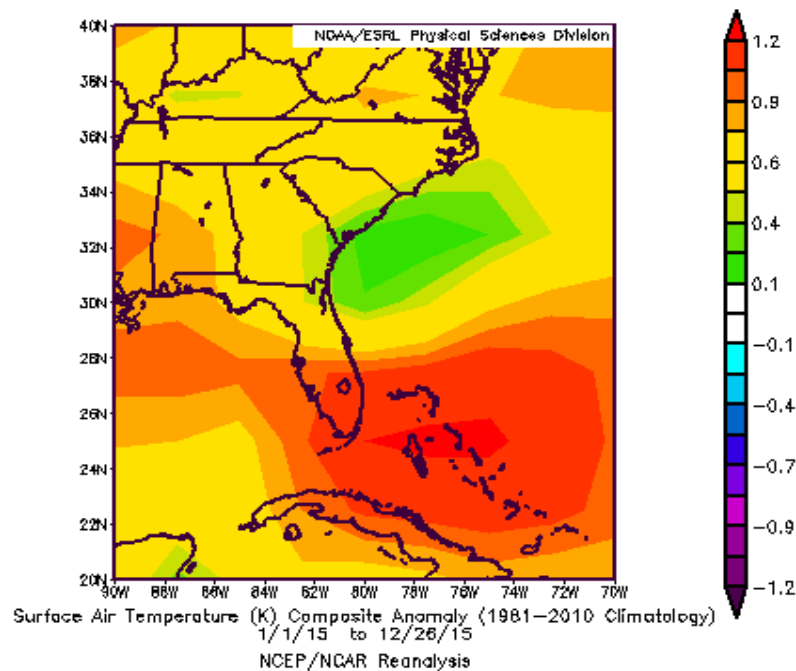
2015: Warmest Year on Record



All temperature data in degrees F

Except for February, every month of 2015 was warmer than normal across south Florida. The warmth began to kick in during the spring, with all four main climate sites setting records for the warmest spring on record. Most notable was on April 26th when a deep and hot west wind flow caused temperatures to soar into the mid and upper 90s across the eastern half of south Florida. Royal Palm Ranger Station in Everglades National Park in deep south Miami-Dade County registered a high of 100 degrees on that date, the first time on record any south Florida location has hit 100 degrees in the month of April. This unusual late April heat ended up being one of the hottest days in south Florida since 2009, and tied for the hottest temperature of the year at Miami, Fort Lauderdale and West Palm Beach.

After a warmer than normal summer which ranked among the top 10 warmest at all locations except West Palm Beach, the heat continued through the fall months as a persistent high pressure area in the mid to upper levels of the troposphere kept cold fronts from pushing through south Florida on a regular basis. Miami, Fort Lauderdale and West Palm Beach will end 2015 without fall/early winter temperatures dropping below 60 degrees...the first time on record at each location. The period from September through December will be the warmest on record for all four climate sites, putting the exclamation point on the warmest year on record in south Florida.



Map of Temperature Departure from Normal for 2015 through 12/26 (equivalent to degrees C)

Location (beginning of historical record)	2015 Avg Temp (F) through 12/29	Departure From Normal (F)	Old Record
Miami Int'l (1895)	79.2	+2.0	78.3 (2011)
Fort Lauderdale Int'l (1912)	78.8	+1.1	78.3 (2007)
Palm Beach Int'l (1888)	78.0	+2.6	77.6 (2011)
Naples Municipal (1942)	77.7	+2.6	76.7 (1946 and 2007)

#2: December Rainfall/Flooding

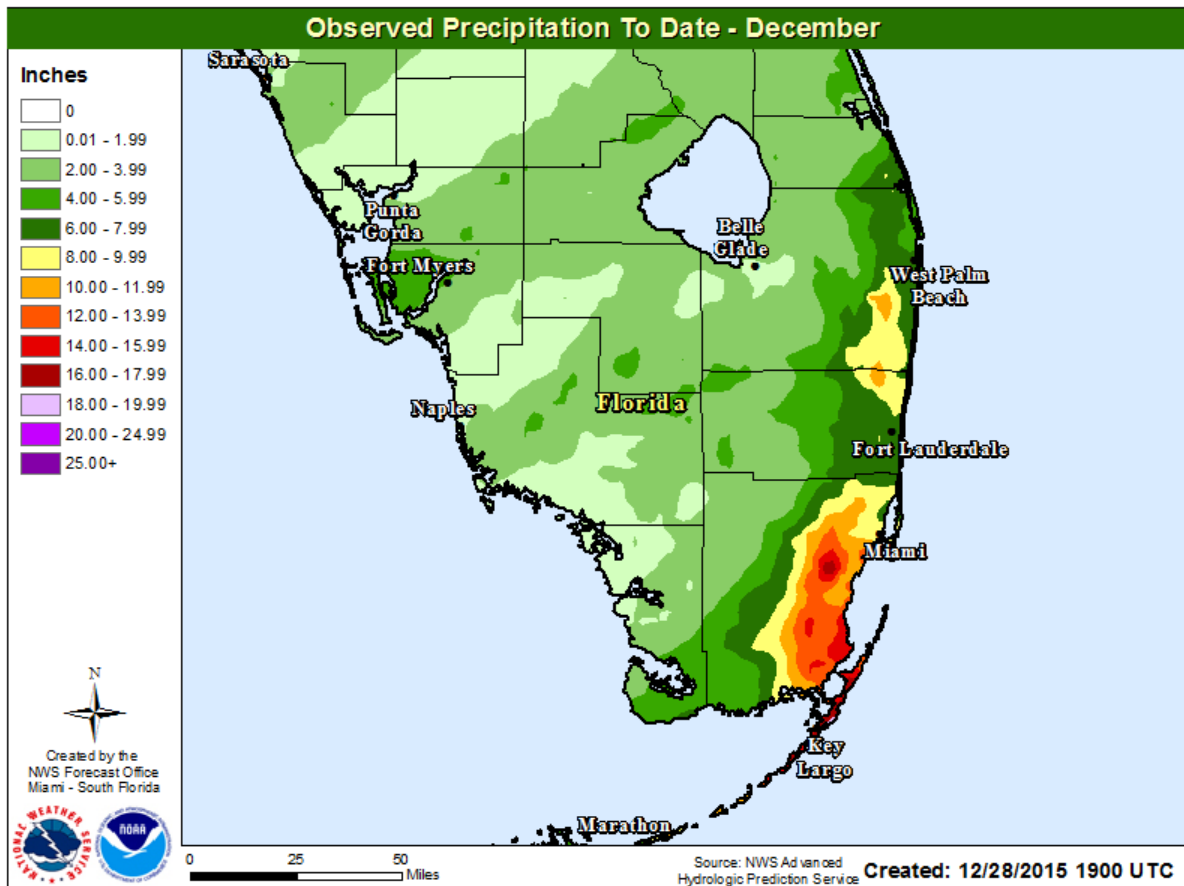


December 5th, 2015: Flooding in West Kendall along SW 120 Street .Photo by Debbie Fischer

December is typically one of south Florida's driest months, but you couldn't tell that from December 2015 in southeast Florida. One in a series of fronts stalled over far southern Florida on December 5th, leading to copious rainfall across Miami-Dade County. Rainfall amounts for the 24-hour period ending on the morning of December 6th were reminiscent of some of the totals observed with past tropical systems. Miami Executive (old Tamiami) Airport recorded 8.92 inches of rain in that 24 hour period, with unofficial amounts just over 10 inches in West Kendall. Rainfall amounts of 6 to 8 inches in the Homestead/Redland area led to severe flooding of fields which resulted in agricultural losses which will likely be in the millions of dollars. Other impacts from these rains included street closures and reports of many stalled vehicles.

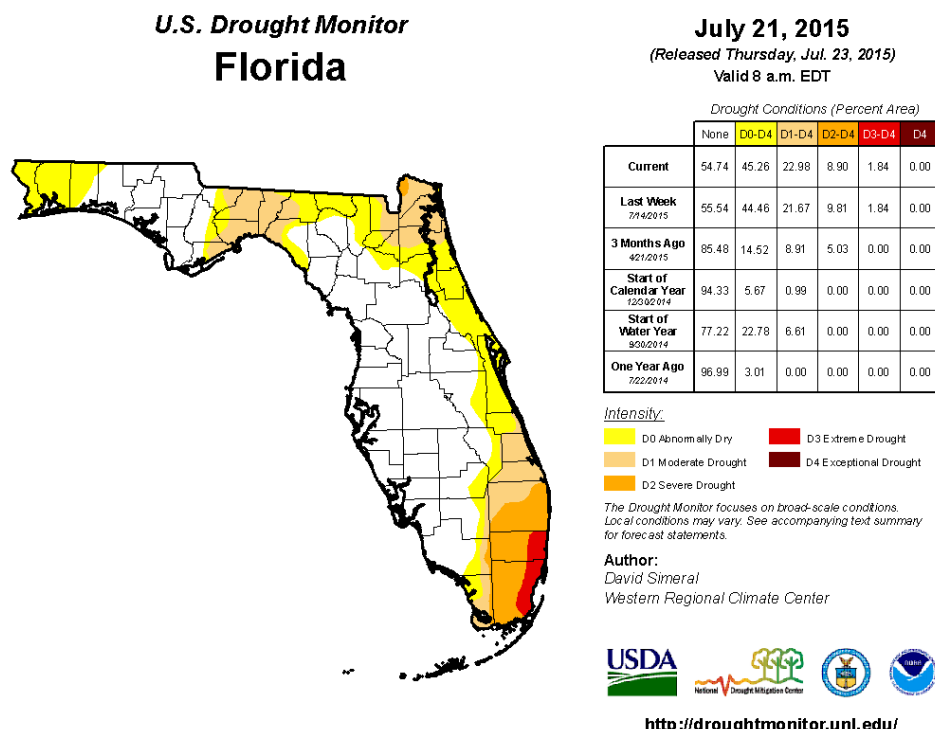
The unusual wet pattern of the first half of December resulted in Miami International Airport recording its second wettest December on record with 9.75 inches as of the 29th.

Miami Executive Airport in West Kendall has recorded a staggering 18.43 inches of rain in December, easily its wettest December since records began in 1998. The Redland has recorded its wettest December on record (going back to 1942) with almost 15 inches of rain (14.92).



West Palm Beach and Fort Lauderdale will also end up among the top 10 wettest Decembers on record with rainfall amounts in excess of 6 inches across the metro Broward and Palm Beach county areas. The effect of the stalled fronts on rainfall totals did not extend too far west, however, as areas of the interior and Gulf coast will end up near or perhaps slightly above normal for December.

#3: Rainy Season Drought

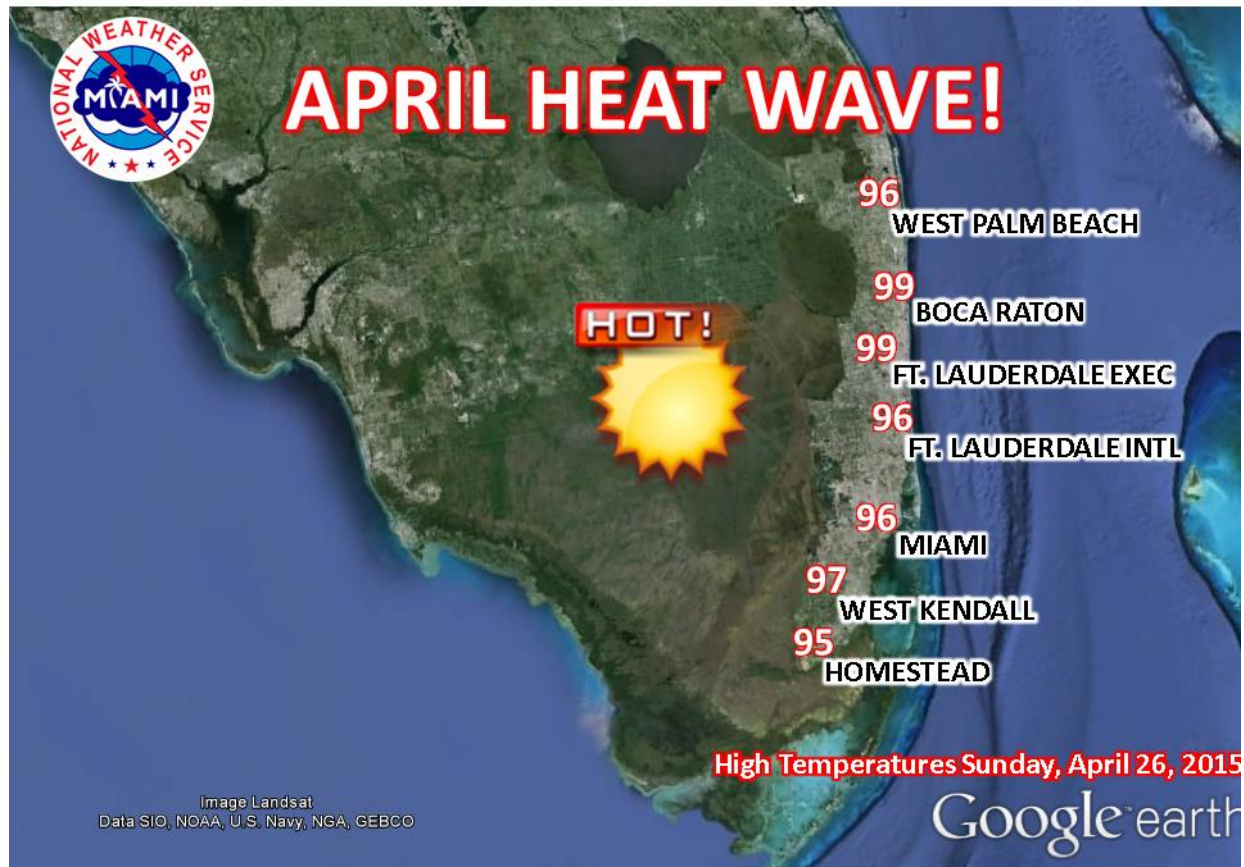


Peak of the unusual summer drought of 2015 in late July

The prevailing weather pattern of the year, featuring a strong high pressure area aloft over the northwestern Caribbean and subtropical Atlantic, contributed to a very dry summer over parts of south Florida. Many parts of Broward County didn't reach 10 inches of rain for the entire summer, including Hollywood at 6.18 inches and Fort Lauderdale/Hollywood International Airport at 9.87 inches (3rd driest summer on record). Miami Executive Airport/West Kendall had 17.05 inches, less than in the month of December alone! This extended summer dryness resulted in extreme drought conditions peaking in late July across southeast Florida (about 2 months later than normal) and the drought didn't completely end until early September.

While southeast Florida observed unusually-little summer rainfall, the persistent easterly winds associated with the high pressure area pushed the summer thunderstorms to the interior and western sections of south Florida. Locations west of Lake Okeechobee such as LaBelle (31.80") and Ortona (31.38") recorded over 31 inches of rain of summer rain, 8th and 7th wettest summer on record, respectively.

#4: Hot April Day



Strong ridge from the

A hot west wind flow coupled with strong high pressure aloft resulted in a record-hot April day. Temperatures hit as high as 99 degrees at both Fort Lauderdale Executive Airport (an official NWS site) and Boca Raton Airport. Miami International Airport reached 96 degrees which tied the all-time high temperature for the month of April. Royal Palm Ranger Station in Everglades National Park in deep south Miami-Dade County reached the 100-degree mark, the first time any south Florida site has reached 100 degrees in the month of April. On the Gulf coast, the onshore west wind moderated temperatures somewhat, but Naples still reached 90 degrees with high humidity.

#5: August Twin Tornadoes

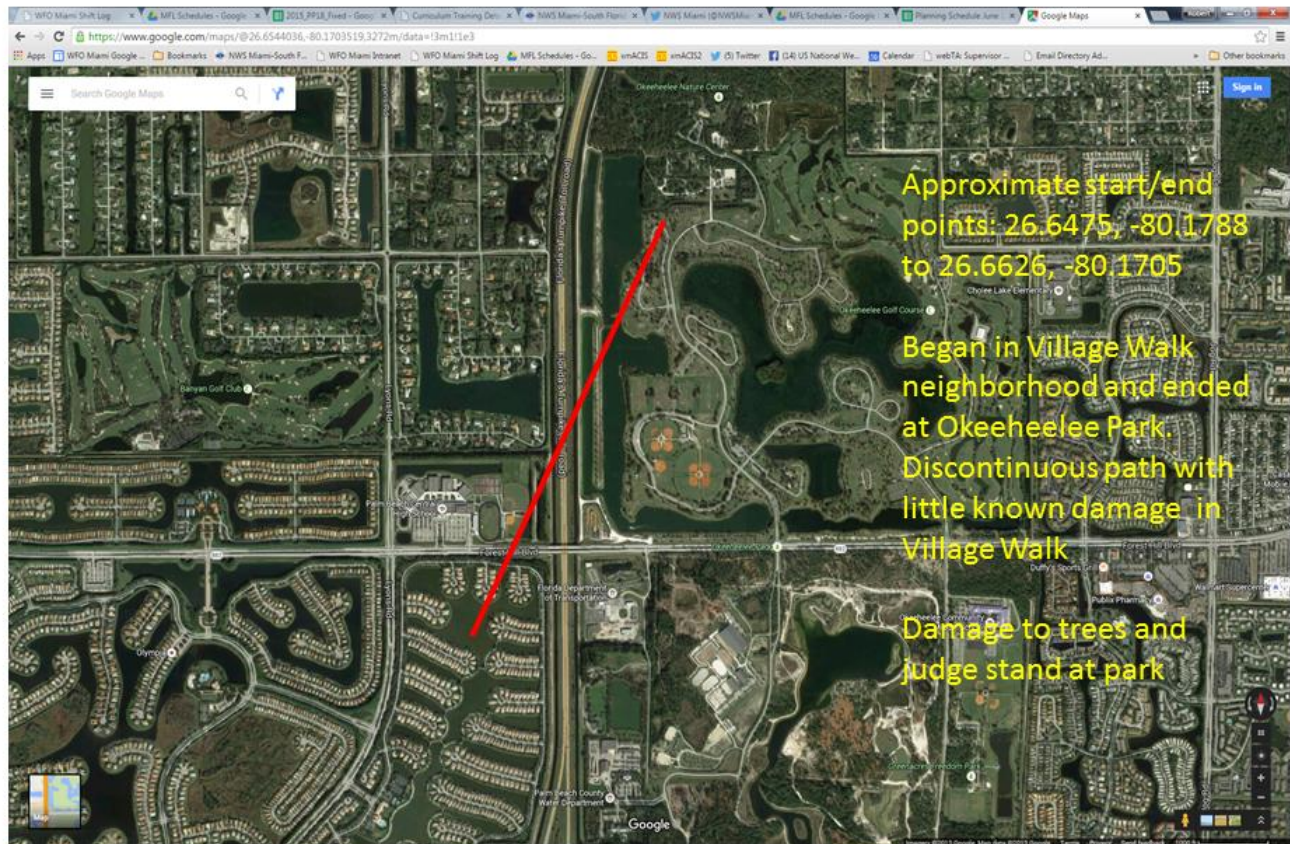


Tornado near Dyer Park in West Palm Beach on August 3rd. Picture courtesy WPTV

Although there were more damaging tornadoes in 2015, the two tornadoes that touched down in Palm Beach County around 4 PM on August 3rd were noteworthy in that they occurred almost simultaneously less than 10 miles apart. The tornadoes spun up along the collision of the sea breeze front and outflow from an inland thunderstorm.

The southern tornado occurred near Okeeheelee Park near Forest Hill Boulevard and the Florida Turnpike, causing damage to trees and wooden structures in the park. The northern tornado occurred near a county landfill west of Dyer Park. No damage was observed with this tornado.

Tornado in Palm Beach County: August 3rd (southern rotation)

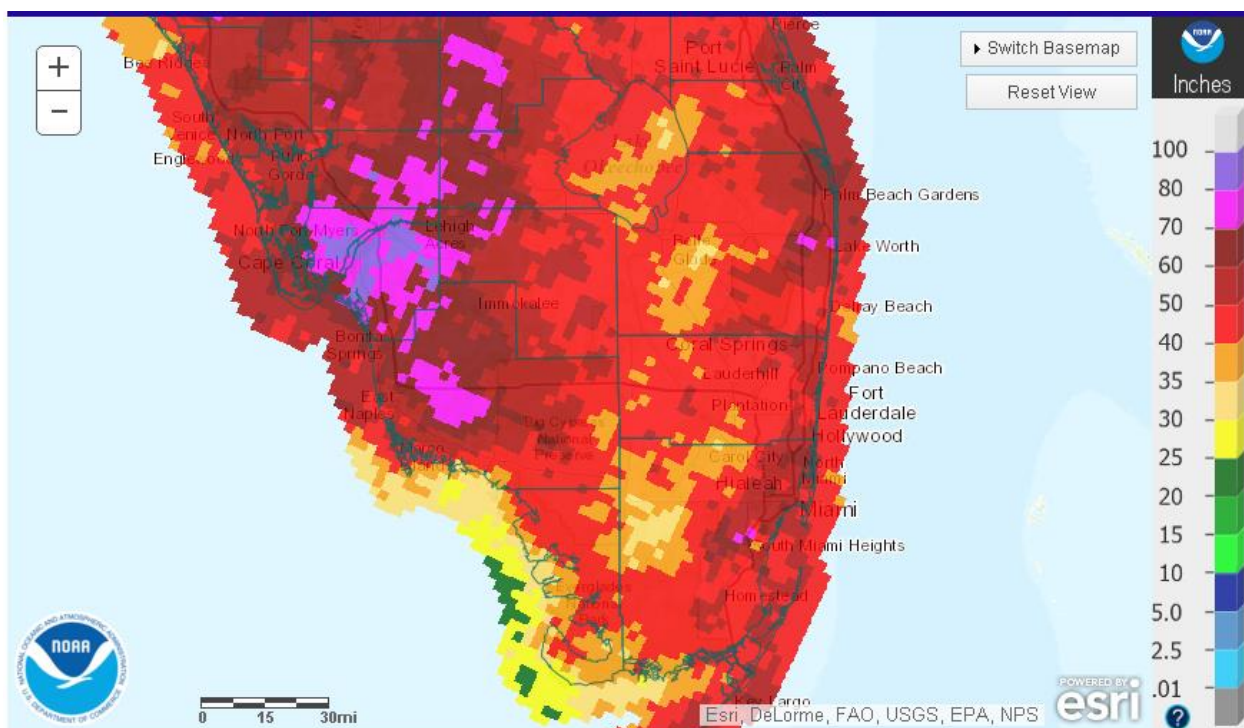


2015 Precipitation Data and Summary

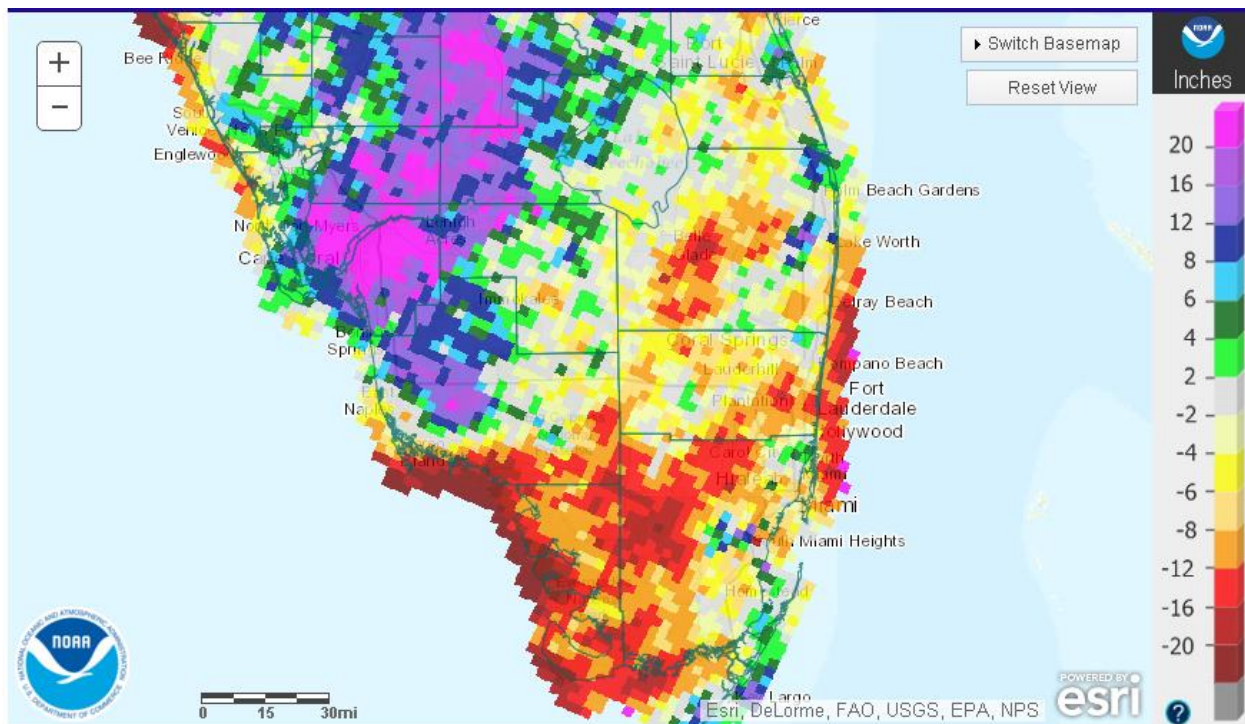
Below is a table of 2015 rainfall measured at NWS Cooperative Observation (COOP) and airport sites along with departures from normal and rank. Data is through 12/29. *NOTE: Normals are for period 1981-2010*

Station – Beginning of Records	2015 Total through 12/29	Dep. from Normal (Rank)
MIAMI - 1911	62.00	+0.10
WEST PALM BEACH – 1888	50.56	-11.77 (21 st driest)
FORT LAUDERDALE – 1912	47.54	-14.64 (17 th driest)
NAPLES - 1942	39.70	-12.19 (10 th driest)
NORTH MIAMI BEACH	81.11	
NAPLES EAST	73.35	
MIAMI EXEC AIRPORT/WEST KENDALL	68.03	
THE REDLAND - 1942	67.25	+4.65 (18 th wettest)
JUNO BEACH	64.91	
NWS MIAMI	63.35	
OPA LOCKA AIRPORT	63.17	
ORTONA	60.25	+4.80
HOMESTEAD GEN APRT - 1990	59.77	
HOLLYWOOD WTR PLANT	59.66	-2.52
HIALEAH – 1940	57.08	-13.30
MUSE	56.56	
LABELLE - 1929	55.48	+2.54
PALM BEACH GARDENS	55.37	
FORT LAUDERDALE BEACH	55.31	
CAPE FLORIDA	54.26	
FT LAUD EXEC AIRPORT	53.79	
BRIGHTON RESERVATION	52.65	

BIG CYPRESS RESERVATION	51.12	
MARCO ISLAND	50.86	
FT. LAUD DIXIE WTR PLANT	50.45	
NORTH PERRY ARPT/PEMBROKE PINES	50.43	
OASIS RANGER STN - 1978	50.33	-7.90
IMMOKALEE - 1970	49.04	-0.78
CANAL POINT - 1940	48.36	-4.25
POMPANO BEACH AIRPARK	47.67	
SOUTH BAY/OKEELANTA	40.85	
MOORE HAVEN – 1918	40.46	-6.49 (21 st driest)



Year-to-Date Rainfall in Inches Ending December 28th



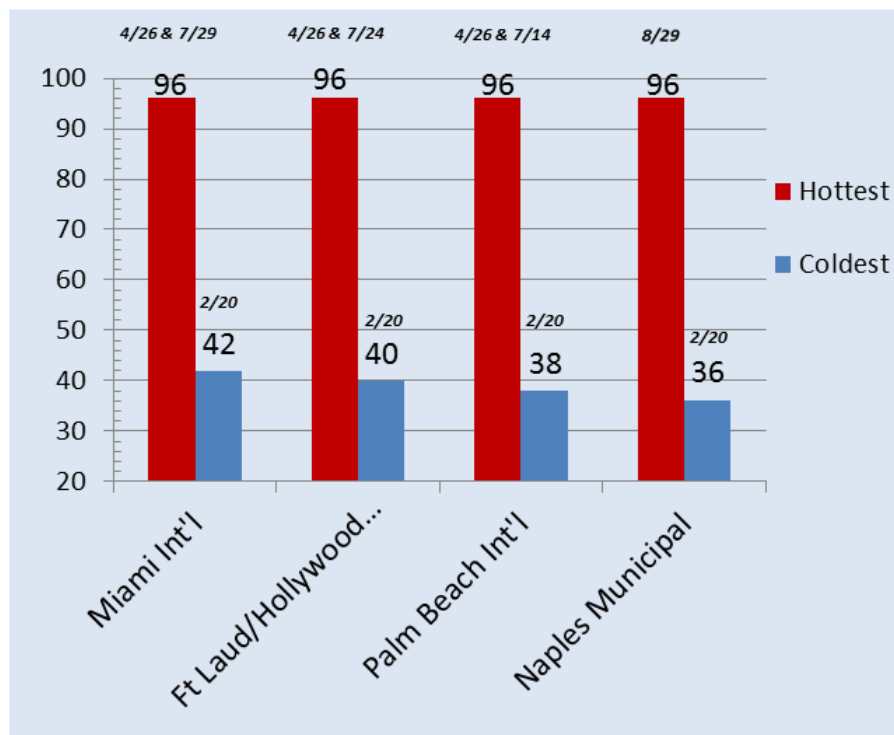
Year-to-Date rainfall departure from normal in inches ending December 28th. Wettest areas relative to normal were across western sections of Glades and Hendry counties as well as interior sections of Collier County. Driest areas relative to normal were in the southern Everglades, far southwest coast and along the Broward County coast.

January through March was seasonably dry except for a couple of localized heavy rain events in February. April was wetter than normal and resembled the start of the rainy season, although the actual start was in early May. After the real start of the rainy season, precipitation began to lag behind the normal, especially across southeast Florida where the period from May through July was among the driest on record at several locations (see entry #3 above). Meanwhile, western areas were receiving much above normal precipitation. Rains began to pick back up in August with eastern areas near normal and western areas continuing above normal. The last 4 months of the year featured above normal rainfall over southeast Florida and near normal western areas. This enabled several eastern locations to “catch up”, but the end result is near to below normal yearly precipitation eastern areas and mostly above normal western areas, especially west and south of Lake Okeechobee.

Juno Beach’s two-year reign as South Florida’s wet spot came to an end this year, with North Miami Beach taking the honors with a yearly total of 81.11 inches. Juno Beach ended up fifth-highest with 64.91 inches. The lowest rainfall total from the official stations was Moore Haven with only 40.46 inches.

Additional 2015 Temperature Data

2015 South Florida Temperature Extremes (in degrees Fahrenheit)



In addition to the information provided in the #1 entry above:

In a record-breaking warm year, it would be expected to not have any significant and/or long-lasting cold spells. This was indeed the case in 2015. The coldest air of the year was on February 19th and 20th when temperatures dipped into the 30s to lower 40s across the area. Near to below freezing temperatures were observed around and south of Lake Okeechobee, with a light to moderate freeze at these locations. The lowest observed temperature in southern Florida by NWS sites was **27 degrees in Ortona in southern Glades County on February 20th**. Frost was noted across most of the interior of the peninsula, even into the outlying suburbs and communities of the east and west coast metro areas.

By contrast, the hottest recorded temperature by NWS sites was 101 degrees at Oasis Ranger Station in far eastern Collier County on June 20th.

Some other noteworthy 2015 temperature statistics:

- **Miami International Airport (MIA)** observed only 4 days of temperatures below 50 degrees. The average number of sub-50 degree days per year is 14. As of 12/29, Miami has a streak of 275 consecutive days of temperatures at or above 60 degrees. This is just short of the record of 279 days set in 1994. Miami is expected to at least tie if not break the record in the coming days. This is also the latest in the fall/winter season Miami has gone without recording a temperature below 60 degrees.

- **Palm Beach International Airport (PBI)** observed only 7 days of temperatures below 50 degrees which is well below the average of 20 days. As of 12/29, West Palm Beach has a streak of 273 consecutive days of temperatures at or above 60 degrees. This breaks the previous record of 254 days set in 1994. This is also the latest in the fall/winter season West Palm Beach has gone without recording a temperature below 60 degrees.

- **Naples Municipal Airport (APF)** observed 10 days of temperatures below 50 degrees which is well below the average of 23 days. Naples had a streak of 237 days of temperatures at or above 60 degrees which ended on November 23rd. This was just short of the record of 240 days set in 2013.

- **Fort Lauderdale/Hollywood International Airport (FLL)** observed only 5 days of temperatures below 50 degrees which is well below the average of 11 days. As of 12/29, Fort Lauderdale has a streak of 274 consecutive days of temperatures at or above 60 degrees. This breaks the previous record of 272 days set in 2000. This is also the latest in the fall/winter season Fort Lauderdale has gone without recording a temperature below 60 degrees.

Severe Weather and Weather-Related Deaths/Injuries/Impacts:

A reported total of eight (8) people died in south Florida from weather-related incidents in 2015 (up from 4 in 2014) and an additional reported 30 were injured (up from 19 in 2014).

Rip currents accounted for 4 deaths, two during March spring break and another 2 during the Memorial Day period. Marine thunderstorms resulted in two deaths, and lightning and strong thunderstorm winds accounted for one death each.

- 17 injuries resulted from rip currents from rescued swimmers who required medical attention.
- There were a total of 19 reported lightning events resulting in 1 death and 8 injuries, mainly in June, July and August. Damage to structures totaled over \$2 million, most of this from a house struck and burned in Naples on June 22nd.

Nine tornadoes were reported in 2015 (one more than the yearly average), with one of EF-1 intensity and the others either EF-0 or not rated. Three of these tornadoes were waterspouts that moved onshore. One of these occurred on Fort Lauderdale Beach on Memorial Day (May 25th), sending a bounce house into the air and injuring 4 children who were in the bounce house when the tornado struck.

Here's a listing of the 2015 tornadoes:

Feb 5: Boca Raton EF1. \$13K damage.

April 23: NW of Belle Glade (waterspout from Lake Okeechobee). No damage.

May 25: Fort Lauderdale Beach EF0. Lifted bounce house at beach with 4 children injured. Waterspout moved onshore.

June 10: Tequesta EF0. \$5K damage.

August 3: Okeeheelee Park, Palm Beach County. EF0 (mostly tree damage to park).

August 3: Near Dyer Park, Palm Beach County. No damage.

August 13: Pahokee EF0. No damage

September 16: Davie EF0 (no damage estimates available...minor damage mostly to trees/vegetation)

September 29: Near Vanderbilt Beach, Collier County. EF0 (minor tree damage). Waterspout moved onshore.

Flooding: 2 damaging flood events (2/28 Miami and 12/5 SW metro Miami-Dade). Severe street flooding with a few structures flooded. Event on 12/5 produced damage to crops in south Miami-Dade County.

In addition, there were 14 combined flood/heavy rain (nuisance flood) events. Tidal flooding due to astronomical high tide (king tides) in late September, early October, late October and late November. The late September event was the most widespread as many streets in vulnerable areas along the Intracoastal Waterway were inundated.

Severe Thunderstorms and Hail: a total of 32 severe thunderstorm wind reports (58 mph or greater) were received, which is slightly higher than the 25-year average of 29. These resulted in 1 death and 1 injury.

A total of 32 reports of hail three-quarters of an inch or greater were received, which is greater than the 25-year average of 18.

(Reference for historical tornado, severe thunderstorm wind and hail statistics:

http://www.srh.noaa.gov/images/mfl/research/MFLSVRCLIMO_2013.pdf)

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